COMMON –104

7004

BOARD DIPLOMA EXAMINATION, (C-20)

FEBRUARY/MARCH —2022

FIRST YEAR (COMMON) EXAMINATION

ENGINEERING CHEMISTRY AND ENVIRONMENTAL STUDIES

Time : 3 hours] [*Total Marks* : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Write any three differences between orbit and orbital.

2. Define mole. Calculate the number of moles in 180 g of water.

3. Define pH. Find the pH of 0.01 M HCl solution.

4. What are electrolytes? Give two examples.

5. Define hard water. Write the names of salts causing temporary hardness to the water.

6. Write any three advantages of plastics over traditional materials.

7. Define fuel. Write any four characteristics of good fuel.

8. Define soap and detergent. Give one example for each.

9. Define pollutant, contaminant and sink.

10. Write any three effects of deforestation.

PART—B

8×5=40

Instructions : (1) Answer **all** questions.

(2) Each question carries **eight** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. *(a)* Write important postulates of Bohr's atomic theory.

(OR)

(b) Write the differences between ionic compounds and covalent compounds.

12. *(a)* Define molarity. Calculate the molarity of solution containing 0.4 grams of NaOH in 450 ml of solution.

(OR)

(b) Define buffer solution. How is it classified? Give one example for each.

13. *(a)* Explain roasting and calcination with necessary equations.

(OR)

(b) What is electrochemical series? What is its importance?

14. *(a)* Define corrosion. Write important factors influencing the rate of corrosion.

(OR)

(b) Explain chlorination and defluoridation methods used for treatment of water.

15. *(a)* Explain vulcanization of rubber with necessary equations.

(OR)

(b) Explain any four causes and any four control methods of water pollution.

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PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) Each question carries **ten** marks.

16. State and explain Faraday's laws of electrolysis. If 9.65 amperes of current is passes for 10 minutes through $CuSO_4$ solution, calculate the weight of copper deposited at cathode. (Atomic weight of cu = 63.5)

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